

Southwest Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
La Jolla, California

SECTION 515 PRE-DISSEMINATION REVIEW & DOCUMENTATION FORM
(5/2003)

AUTHOR/RESPONSIBLE OFFICE:

D.G. Foley (Coastwatch Coordinator) and LTjg. L. J. Spence* (Coastwatch Operations Officer)

* = point of contact.

TITLE/DESCRIPTION: Coastwatch Advanced Very High Resolution Radiometer (AVHRR) High Resolution Picture Transmission (HRPT) Near Real Time Data

PRESENTATION/RELEASE DATE: January, 1994 - ongoing

MEDIUM: Internet

PRE-DISSEMINATION REVIEW:

Name and Title of Reviewing Official: Dr. Frank Schwing.
(Must be at least one level above person generating the information product)

Pursuant to Section 515 of Public Law 106-554 (the Data Quality Act), this product has undergone a pre-dissemination review.

Signature

Date

SECTION 515 INFORMATION QUALITY DOCUMENTATION

I. Utility of Information Product

Explain how the information product meets the standards for utility:

A. Is the information helpful, beneficial or serviceable to the intended user?

The satellite-derived products generated by the NOAA Coastwatch, West Coast Regional Node (WCRN), offer useful information to data customers in easily accessible formats. The products are utilized by a wide range of users, including member of the scientific community, managers, fishers, educators, and the interested public. Listed below are a few examples of Coastwatch users and the varied

Southwest Fisheries Science Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
La Jolla, California

SECTION 515 PRE-DISSEMINATION REVIEW & DOCUMENTATION FORM
(5/2003)

AUTHOR/RESPONSIBLE OFFICE:

D.G. Foley (Coastwatch Coordinator) and LTjg. L. J. Spence* (Coastwatch Operations Officer)

* = point of contact.

TITLE/DESCRIPTION: Coastwatch Advanced Very High Resolution Radiometer

(AVHRR) High Resolution Picture Transmission (HRPT) Near-Real Time Data

PRESENTATION/RELEASE DATE: January, 1994 - ongoing

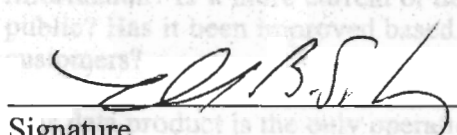
MEDIUM: Internet

PRE-DISSEMINATION REVIEW:

Name and Title of Reviewing Official: Dr. Frank Schwing

(Must be at least one level above person generating the information product)

Pursuant to Section 515 of Public Law 106-554 (the Data Quality Act), this product has undergone a pre-dissemination review.


Signature

4/25/05
Date

SECTION 515 INFORMATION QUALITY DOCUMENTATION

I. Utility of Information Product

Explain how the information product meets the standards for **utility**:

A. Is the information helpful, beneficial or serviceable to the intended user?

The satellite-derived products generated by the NOAA Coastwatch, West Coast Regional Node (WCRN), offer useful information to data customers in easily accessible formats. The products are utilized by a wide range of users, including member of the scientific community, managers, fishers, educators, and the interested public. Listed below are a few examples of Coastwatch users and the varied

application of Coastwatch data.

Fisheries scientists use the data to assist their adaptive sampling efforts on their research and survey cruises. Recent cruises directly supported by this data included a fish larva survey (Chief Scientist: Richard Charter, NOAA Fisheries SWFSC) and a groundfish survey (Elizabeth Clarke, NOAA Fisheries NWFSC).

Primary and secondary educators use Coastwatch products in the classroom. The Ocean Explorers program identifies Coastwatch products as a possible classroom tool for ocean education and provides a link through its website. (see www.exploreoceans.org/learn.html)

The Center for Integrated Marine Technologies (CIMT), University of California at Santa Cruz, is a multi-disciplinary coastal monitoring program for the Monterey Bay area. Coastwatch data is included in the suite of near real-time satellite-monitoring tools featured by CIMT (see <http://oceandatacenter.ucsc.edu/NRT/>).

Researchers use Coastwatch AVHRR data to facilitate their sampling efforts and for use in analysis of their results. CIMT researchers and their collaborators cite CoastWatch data in their study of harmful algal blooms off the west coast of North America. (see http://people.ucsc.edu/~kudela/reprints/Kudela_XHAB1_2003.pdf) The authors continue to use and cite Coastwatch AVHRR data as an operational component of their NOAA-funded Harmful Algal Bloom study.

Feedback received at the Coastwatch West Coast node verifies that both recreational and commercial fishers also regularly use the products, in some case setting up their web sites for specialized distribution and applications. .

A more extensive list of references utilizing CoastWatch products will be made available upon request.

B. Is the data or information product an improvement over previously available information? Is it more current or detailed? Is it more useful or accessible to the public? Has it been improved based on comments from or interactions with customers?

This data product is the only operational near real-time AVHRR HRPT data stream for the west coast.

The product can be viewed on the WCRN website (<http://oceanwatch.pfel.noaa.gov/>) using any computer with internet access and the appropriate browser. The product is also distributed via OpenDAP/DODS.

Improvements are continuously being implemented based on feedback from customers, with a focus on usability and accessibility. The value of the data to the general community is evidenced by the high rate of access: about 7,000,000 "hits", and 303 Giga-Bytes of data were transferred during the 2004 calendar year.

C. What media are used in the dissemination of the information? Printed publications? CD-ROM? Internet? Is the product made available in a standard data format? Does it use consistent attribute naming and unit conventions to ensure that the information is accessible to a broad range of users with a variety of operating systems and data needs?

This is an internet product, distributed via simple browser, Live Access Server, and OpenDAP/DODS.

The product is available in formats commonly used by imaging programs (e.g., HDF, netCDF files), GIS programs (ascii grid), and spreadsheet programs (csv and other column ascii files).

All attributes are named in a manner consistent with guidelines established by NESDIS for polar orbiting satellite products (see the NOAA Polar Orbiter Data User's Guide - <http://www2.ncdc.noaa.gov/docs/podug/>). All units follow System Internationale (SI) guidelines.

II. Integrity of Information Product

Explain (Circle) how the information product meets the standards for **integrity**:

(A). All electronic information disseminated by NOAA adheres to the standards set out in Appendix III, _ Security of Automated Information Resources, _ OMB Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

B. If information is confidential, it is safeguarded pursuant to the Privacy Act and Titles 13, 15, and 22 of the U.S. Code (confidentiality of census, business and financial information).

C. Other/Discussion (e.g., Confidentiality of Statistics of the Magnuson-Stevens Fishery Conservation and Management Act; NOAA Administrative Order 216-100 - Protection of Confidential Fisheries Statistics; 50 CFR 229.11, Confidentiality of information collected under the Marine Mammal Protection Act.)

III. Objectivity of Information Product

(1) Indicate which of the following categories of information products apply for this product:

- ☐ Original Data
- ☒ Synthesized Products
- ☐ Interpreted Products
- ☐ Hydrometeorological, Hazardous Chemical Spill, and Space Weather Warnings,

- Forecasts, and Advisories
- ☐ Experimental Products
 - ☐ Natural Resource Plans
 - ☐ Corporate and General Information

(2) Describe how this information product meets the applicable objectivity standards.
(See the DQA Documentation and Pre-Dissemination Review Guidelines for assistance and attach the appropriate completed documentation to this form.)

B. Synthesized Products

The objectivity of synthesized products is achieved by using data of known quality, applying sound analytical techniques, and reviewing the products or processes used to create them before dissemination. For synthesized products, please document the following:

Data and information sources are identified or made available upon request.

The data source is clearly identified on the WCRN web site, and in the accompanying metadata as the NOAA Coastwatch Program, which in turn, provides a full explanation of the processing involved. An overview of the processing of Coastwatch products generated from Polar-orbiting Operational Environmental Satellite data can be viewed at http://coastwatch.noaa.gov/poes_sst_overview.html. More detailed information regarding the data source and processing methods can be viewed in the documentation section at <http://www.osdpd.noaa.gov/PSB/EPS/CW/coastwatch.html>.

NOAA uses data of known quality or from sources acceptable to the relevant scientific and technical communities in order to ensure that synthesized products are valid, credible and useful.

The source data are derived by methods common to the relevant scientific and technical communities. The calculation of surface temperatures from the AVHRR spectral channels follows the methods of Walton *et al.*, 1998. The cloud screening uses the CLAVR-x method developed and maintained by NOAA Satellites and Information (e.g., Stowe *et al.*, 1999). Ongoing calibration and validation efforts by NOAA satellites and information provide for continuity of quality assessment and algorithm integrity (e.g., Li *et al.*, 2001a and Li *et al.*, 2001b)

Synthesized products are created using methods that are either published in standard methods manuals, documented in accessible formats by the dissemination office, or generally accepted by the relevant scientific and technical communities.

The methods employed in the mapping and composite image generation are consistent with techniques in the published literature. The most conservative cloud mask (Stowe *et al.* 1999) is applied to the surface temperature data. The data are mapped to an equal angle grid (0.0125 degrees by 0.0125 degrees) using a simple arithmetic mean to produce individual and composite images of various durations (e.g., 1, 3, 8, and 14-days), following the recommendations of the International Ocean-Colour Coordinating Group (Antoine *et al.*, 2004) and using methods described by Smith and Wessel, 1990. Graphical

end products are generated using the Generic Mapping Tools software (*Wessel and Smith, 1998*). Digital data, including the cloud mask and unmasked surface temperatures, are made available via a Live Access Server and OpenDAP/DODS.

NOAA includes the methods by which synthesized products are created when they are disseminated or makes them available upon request.

A basic description of all methods is included in the accompanying FGDC-compliant metadata files. More detailed description of these methods are available on-line, with links originating at the WCRN web page. A complete description of the methods, including the program code used to generate the end products from the data supplied by NESDIS, is available upon request.

NOAA reviews synthesized products or the procedures used to create them (e.g. statistical procedures, models, or other analysis tools) to ensure their validity.

The WCRN runs monthly validation tests for all SST data streams using data from the NOAA National Weather Service, National Data Buoy Center, after the method of *Li et al. 2001b*. The comparisons between SST derived from buoys and various satellites platforms are made available upon request. These products are generated and distributed on an operational basis in near real time. In addition to the efforts WCRN takes to ensure data validity, users are cautioned these products may not be appropriate for many scientific applications. Users interested in scientific applications which are not time critical are referred to an appropriate data source, whenever one is available.

References:

- Antoine, D., J. W. Campbell, R. H. Evans, W. W. Gregg, M. R. Lewis, A. Morel, C. Moulin, H. Murakami. Guide to the creation and use of Ocean-Colour, Level-3, binned data products. IOCCG Report Number 4, 2004.
- Kudela, R, W. Cochlan, and A. Roberts. 2003. Spatial and temporal patterns of *Pseudo-nitzschia* spp. in central California related regional oceanography. In: Steidinger, K.A., J.H. Landsberg, C.R. Tomas, and G.A. Vargo (Eds.) Harmful Algae 2002. Florida and Wildlife Conservation Commission, Florida Institute of Oceanography, and Intergovernmental Oceanographic Commission of UNESCO. In press.
- Li, X., W. Pichel, E. Maturi, P. Clemente-Colón, and J. Sapper, Deriving the operational nonlinear multi-channel sea surface temperature algorithm coefficients for NOAA-15 AVHRR/3, International Journal of Remote Sensing, Volume 22, No. 4, 699 - 704, March 2001a.
- Li, X, W. Pichel, P. Clemente-Colón, V. Krasnopolsky, and J. Sapper, Validation of coastal sea and lake surface temperature measurements derived from NOAA/AVHRR Data, International Journal of Remote Sensing, Vol. 22, No. 7, 1285-1303, 2001b.
- Smith, W. H. F. and P. Wessel. Gridding with a continuous curvature surface in Tension, *Geophysics*, 55, 293-305, 1990 .
- Stowe, L. L., P. A. Davis, and E. P. McClain. Scientific basis and initial evaluation of the CLAVR-1 global clear/cloud classification algorithm for the advanced very high resolution radiometer. *J. Atmos. Oceanic Technol.*, 16, 656-681. 1999.
- Walton C. C., W. G. Pichel, J. F. Sapper, D. A. May, The development and operational application of nonlinear algorithms for the measurement of sea surface temperatures with the NOAA polar-orbiting environmental satellites, J.G.R., 103: (C12) 27999-28012, 1998.
- Wessel, P. and W. H. F. Smith, New, improved version of the Generic Mapping Tools released, EOS Trans. AGU, 79, 579, 1998)